

translation

INTERNATIONAL COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

PCT/EP2003/008891



Applicant's or agent's file reference K 59 875/7nb	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/008891	International filing date (day/month/year) 11 August 2003 (11.08.2003)	Priority date (day/month/year) 13 August 2002 (13.08.2002)
International Patent Classification (IPC) or national classification and IPC B42D 15/00, G07D 7/12, 7/20		
Applicant GIESECKE & DEVRIENT GMBH		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 9 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 09 March 2004 (09.03.2004)	Date of completion of this report 07 December 2004 (07.12.2004)
Name and mailing address of the IPEA/EP	Authorized officer
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/008891

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description: _____, as originally filed
 pages _____ 1-16, 19-21
 pages _____, filed with the demand
 pages _____ 17, 18, filed with the letter of 24 September 2003 (24.09.2003)
- ☒ the claims: _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____ 1-40, filed with the letter of 22 October 2004 (22.10.2004)
- ☒ the drawings: _____, as originally filed
 pages _____, filed with the demand
 pages _____ 1/5-5/5, filed with the letter of 24 September 2003 (24.09.2003)
- ☐ the sequence listing part of the description: _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/EP2003/008891

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 9, 24

because:

☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 9, 24
are so unclear that no meaningful opinion could be formed (*specify*):

See the supplemental sheet

☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. _____.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: BOX III.1.

**Non-establishment of opinion with regard to novelty,
inventive step and industrial applicability**

Clarity:

1. The application does not meet the requirements of PCT Article 6 because dependent claims 9 and 24 are not clear.

2. Claim 9:

The wording used in claim 9 is vague and unclear in relation to independent claim 1 and leaves the reader uncertain as to the meaning of the technical feature in question. The current feature of claim 9 is already part of independent claim 1. As a result, the subject matter of claim 9 as a whole is not clearly defined (PCT Article 6).

3. Claim 24:

The phrase "... embossing structure ... configured as colour line gravure printing..." in claim 24 is vague and unclear and leaves the reader uncertain as to the meaning of the technical feature in question. It is totally unclear to a person skilled in the art how an **embossing** structure can be configured as **line gravure printing**. As a result, the subject matter of claim 24 is not clearly defined (PCT Article 6).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.
PCT/EP 03/08891

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8, 10-23, 25-40	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-8, 10-23, 25-40	NO
Industrial applicability (IA)	Claims	1-8, 10-23, 25-40	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents listed in the search report:

D1: WO-A-97/17211
D2: WO-A-02/20280
D3: EP-A-0 372 274

Inventive step

1. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of the two independent claims, claims 1 and 34, and of claims 2 to 8, 10 to 23, 25 to 33 and 35 to 40, which are dependent thereon, does not involve an inventive step (PCT Article 33(3)).

2. Claims 1 and 34:

Document D2 (WO-A-02/20280), which is regarded as the closest prior art, discloses a data carrier as per the preamble of independent claim 1 and a method for producing a data carrier as per independent claim 34, from which the subject matter of claims 1

and 34 differs only by virtue of the following feature:

- see claim 1:

"... the second coating is likewise contrasting in relation to the data carrier surface";

- see claim 34:

"... a contrasting colour to the surface of the data carrier is also chosen for the second coating...".

These features have already been used, however, for the same purpose in a similar data carrier; see document D3 (EP-A-0 372 274), in particular the abstract; column 5, line 32 to column 8, line 56; and figures 6 to 9. If a person skilled in the art wished to achieve the same aim in a data carrier as per document D2, he could easily apply these features to like effect to the subject matter of D2. In this way he would arrive at a data carrier as per claim 1 and at a method for producing a data carrier as per claim 34 without thereby being inventive.

3. Dependent claims 2 to 8, 10 to 23, 25 to 33 and 35 to 40:

3.1 Claims 2 and 7:

Document D3 already discloses the features of the present claims 2 and 7.

3.2 Claims 3, 10 to 17, 20 to 23, 26, 33, 35 and 37:

Document D1 already discloses all the features of the present claims 3, 10 to 17, 20 to 23, 26, 33, 35 and 37.

3.3 Claims 4 to 6, 8, 18, 19, 25, 32, 39 and 40:

Dependent claims 4 to 6, 8, 18, 19, 25, 32, 39 and 40 concern minor modifications to the data carrier or production method according to claims 1 and 34, of the kind that a person skilled in the art routinely makes on the basis of familiar considerations, especially since the resulting advantages are readily foreseeable. Consequently, the subject matter of claims 4 to 6, 8, 18, 19, 25, 32, 39 and 40 also fails to involve an inventive step.

3.4 Claims 27 to 31, 36 and 38:

Document D2 already discloses all the features of the present claims 27 to 31, 36 and 38.

Amended claims

1. A data carrier with an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier and provided only in certain areas, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, and the optically variable structure having at least in partial areas a second coating disposed in overlap with the first coating at least in partial areas, characterized in that the second coating likewise contrasts with the data carrier surface.

2. A data carrier according to claim 1, characterized in that the second coating is disposed congruent to at least parts of the raised areas of the embossed structure.

3. A data carrier according to claim 2, characterized in that the data carrier has an intaglio motif.

4. A data carrier according to claim 3, characterized in that at least parts of the embossed structure are disposed in the area of the intaglio motif.

5. A data carrier according to claim 3 or 4, characterized in that the second coating has the same color as the intaglio motif.

6. A data carrier according to any of claims 3 to 5, characterized in that the second coating is part of the intaglio motif.

7. A data carrier according to at least one of claims 1 to 6, characterized in that the second coating has a color contrasting with the first coating.

8. A data carrier according to at least one of claims 1 to 7, characterized in that the color used for the first coating has a complementary contrast with the color of the second coating.

9. A data carrier according to at least one of claims 1 to 8, characterized in that the first and second coatings are disposed at least partly in overlap.

10. A data carrier according to at least one of claims 1 to 9, characterized in that the optically variable structure has a metallic background layer.

11. A data carrier according to at least one of claims 1 to 10, characterized in that the first and/or second coating has machine-readable properties at least in certain areas.

12. A data carrier according to claim 11, characterized in that the first and/or second coating has magnetic, electrically conductive or luminescent properties.

13. A data carrier according to at least one of claims 1 to 12, characterized in that the optically variable structure is superimposed or underlaid with an additional transparent optically variable layer or a foil element.

14. A data carrier according to at least one of claims 1 to 13, characterized in that one of the coatings is of multicolor design.

15. A data carrier according to at least one of claims 1 to 14, characterized in that the first coating is a printed screen structure.

16. A data carrier according to at least one of claims 1 to 15, characterized in that the screen structure is a line screen with a constant screen ruling.

17. A data carrier according to claim 16, characterized in that the line screen consists of colored, spaced-apart lines or colored, directly adjoining lines.

18. A data carrier according to at least one of claims 1 to 17, characterized in that the line screen has thickened areas at least in certain areas.

19. A data carrier according to claim 18, characterized in that the line screen has the thickened areas only on one side.

20. A data carrier according to claim 18 or 19, characterized in that the line screen represents a halftone image.

21. A data carrier according to at least one of claims 1 to 20, characterized in that the embossed structure is an embossed screen structure.

22. A data carrier according to at least one of claims 1 to 21, characterized in that the embossed structure is executed as a line screen with a constant screen ruling.

23. A data carrier according to at least one of claims 1 to 21, characterized in that the embossed structure has a varying screen ruling in certain areas.

24. A data carrier according to at least one of claims 1 to 23, characterized in that the embossed structure and the second coating are executed as colored intaglio prints.

25. A data carrier according to at least one of claims 1 to 24, characterized in that the first coating is a dark line screen and the second coating is present in the form of a light, colored line screen.

26. A data carrier according to at least one of claims 1 to 25, characterized in that the embossed structure has raised areas of different height.

27. A data carrier according to at least one of claims 1 to 26, characterized in that the embossed structure and the first coating have the same screen ruling.

28. A data carrier according to at least one of claims 1 to 27, characterized in that the embossed structure is subdivided into partial areas where different partial embossed structures are provided.

29. A data carrier according to claim 28, characterized in that the partial areas form a two-dimensional matrix having m partial areas in the horizontal direction and n partial areas in the vertical direction, where $m, n \geq 1$, preferably $m, n \geq 2$.

30. A data carrier according to claim 28 or 29, characterized in that the partial embossed structures in at least two adjoining partial areas are disposed offset by a fraction, in particular one third, of the screen ruling.

31. A data carrier according to at least one of claims 28 to 30, characterized in that at least the partial embossed structures of one partial area have an unembossed edge contour.

32. A data carrier according to at least one of claims 1 to 31, characterized in that at least one of the coatings consists at least partly of translucent inks.

33. A data carrier according to at least one of claims 1 to 32, characterized in that the data carrier is a paper of value, in particular a bank note.

34. A method for producing a data carrier with an optically variable structure having an embossed structure with raised areas and a first coating contrasting with the surface of the data carrier and applied to the data carrier only in certain areas, the embossed structure and the coating being so combined that at least parts of the coating are completely visible upon perpendicular viewing but concealed upon oblique viewing so that a tilt effect arises upon alternate perpendicular and oblique viewing, characterized by the following steps:

- applying the first coating to the data carrier only in certain areas,
- embossing the embossed structure in the data carrier by means of an embossing tool, whereby with the embossing a second coating is transferred to the data carrier in overlap with the first coating at least in partial areas, whereby a color likewise contrasting with the surface of the data carrier is selected for the second coating, and the transferring of the second coating to the data carrier is done congruently to at least parts of the raised areas of the embossed structure.

35. A method according to claim 34, characterized in that the data carrier is provided with an intaglio motif and at least parts of the embossed structure are disposed in the area of the intaglio motif.

36. A method according to claim 34 or 35, characterized in that the first coating is produced by the offset process.

37. A method according to at least one of claims 34 to 36, characterized in that the first coating is produced as a line screen.

38. A method according to at least one of claims 34 to 37, characterized in that the embossed structure and the second coating are produced by ink-carrying intaglio printing.

39. A method according to claim 38, characterized in that the second coating is executed as a color split.

40. A method according to at least one of claims 34 to 39, characterized in that the first coating is applied first, and in a second step the embossed structure and the second coating are transferred simultaneously.

Fig. 4 shows a variant in which first coating 4 completely covers connection bars 7 and part of the flanks of embossed structure 5. In this example, second coating 6 covers first coating 4 only partly, so that first coating 4 is also visible in partial areas.

Fig. 5 shows a further embodiment in which the relative position of embossed structure 5, first coating 4 and second coating 6 corresponds to the embodiment already shown in Fig. 3. However, the raised areas of embossed structure 5 have different heights in this example. If embossed structure 5 and coating 6 are produced by ink-carrying intaglio printing, this means that more ink is transferred in the areas of the embossed structure with the higher raised areas. Due to the higher ink layer thickness in area 8 of embossing 5, partial areas 8 of embossing 5 appear in a darker color tone than partial areas 9 of embossing 5. In this way, additional information can be produced in the optically variable element.

However, such visually recognizable additional information can also be produced in other ways. If translucent printing inks are used, the additional information can also be represented by a higher ink layer thickness in certain areas of the printed image.

Fig. 6 shows in cross section printing plate 30 for producing such additional information. First printed image 31 is engraved into plate 30 with depth t_1 . Second printed image 32, which is superimposed on first printed image 31, is engraved into plate 30 with depth t_2 . Since the engraving for second printed image 32 is deeper than the engraving for first printed image 31, more ink is transferred in the area of printed image 32. When translucent printing inks are used, a darker color effect therefore results in the area of printed image 32, and printed image 32 is recognizable against lighter printed image 31. According to this example, the two printed images 31, 32 form the second coating that is transferred to the document of value simultaneously with the embossed structure in the printing operation.

Fig. 7 shows a further variant for producing additional information in the second coating. It again shows printing plate 30, into which a line with width b is milled. Said line is composed of different areas 33, 34 that differ in their depth and flank steepness. In the finished printed image said line shows different color effects along its length since the inking is different in areas 33, 34.